

Space News Roundup

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No. 33

Atlantis work goes smoothly

By Kyle Herring

Atlantis is scheduled to move to the Vehicle Assembly Bldg. on Sunday afternoon in preparation for its October mission to start the Galileo probe on its voyage to Jupiter.

Work on the orbiter is proceeding smoothly with about seven contingency days remaining in the processing flow at Kennedy Space Center in case of problems that may arise during the remaining six weeks

STS-34 Galileo

of preflight preparation.

Atlantis and her crew—Commander Don Williams, Pilot Mike McCulley and Mission Specialists Shannon Lucid, Franklin Chang-Diaz and Ellen Baker—are scheduled to blastoff from Launch Pad 39B on Oct. 12. About 6.5 hours after launch, the crew is scheduled to deploy the two-part Galileo probe and its inertial upper stage (IUS) booster.

Payload bay cleaning operations were completed this week and the doors were closed for the roll of Atlantis to the VAB, where it will be mated with its solid rocket booster/external tank stack. The Galileo spacecraft remains in the Vertical Processing Facility awaiting transfer to the launch pad rotating service structure's clean room on Aug. 23.

The Atlantis stack will be transferred to the launch pad about Please see STS-34, Page 4



JSC Photo

STS-28 Commander Brewster Shaw and his wife, Kathleen, lead the way down the red carpet as the crew returns to Ellington Field on Sunday. Behind him are Mission Specialists Jim Adamson and his wife, Susan, JSC Director Aaron Cohen and Flight Crew Operations Director Don Puddy. Also in the background, Mission Specialist Dave Leestma and his wife, Patti, prepare for a receiving line of five Leestma children.

Columbia's success restores workhorse to shuttle rotation

NASA once again has a three-orbiter fleet of operational space shuttles, with crew members and program officials stressing the importance of returning an old workhorse to the team that must pull the load of an ambitious manifest.

Columbia and its crew of five glided to a safe landing at Edwards Air Force Base at 8:37 a.m.

CDT Sunday, successfully completing a five-day Department of Defense mis-

sion. Launch was at 7:37 a.m. CDT the previous Tuesday, making the flight duration approximately five days, one hour.

Although information about the payload was classified, officials said Columbia looked extremely clean after its first flight in 42 months.

"It was really an honor for us, a pleasure to be involved with the return to flight of Columbia and the restoration of NASA's three space shuttle fleet—which will soon be four," Commander Brewster Shaw told about 300 friends, co-workers and family members who welcomed the crew home at Ellington Field.

JSC Director Aaron Cohen congratulated the crew, comprised of Shaw, Pilot Dick Richards and Mission Specialists Dave Leestma, Jim Adamson, and Mark Brown, on their dedication. Then, he broadened his praise to include all of the contractors and

project and program workers who contributed.

"Not only was this a great mission, but it also was a great event—getting our complete orbiter fleet back into service in a safe, successful way," Cohen said. "Getting 102 Columbia back was a very key milestone and this crew did an outstanding job in doing that."

"Columbia's a great vehicle," Adamson said. "All of us who worked on getting

her back to flight status and those few of us lucky enough to take her back up the first time can certainly attest to that."

Columbia Flow Director Ann Montgomery of Kennedy Space Center described the orbiter's condition as "absolutely beautiful."

A list of about 12 minor in-flight anomalies is being investigated. The problems included a thruster in the reaction control system that was shut down in flight by the crew because of leak indications, and an RCS heater that malfunctioned. The system will be replaced prior to Columbia's next mission, the SYNCOM communications satellite deployment and Long Duration Exposure Facility (LDEF) retrieval scheduled for December.

Preliminary tile inspection showed three tiles on the underside of the vehicle were damaged. One of the tiles Please see STS-28, Page 4

STS-28

Easley heads procurement

Leads \$2 billion-a-year acquisition efforts

By Linda Copley

Gene Easley, former chief of the Space Shuttle Procurement Division, has been appointed JSC's director of procurement and procurement officer. Easley replaces James Neal, who retired in May.

"I am very pleased in the confidence that Mr. Cohen has shown in me in selecting me for this position," said Easley, "and am very excited about this new challenge."

Easley's former position will be temporarily filled on a rotational basis by Richard Regensburg, chief of the STS Engineering and Equipment Procurement Branch, and Deidre Lee, chief of the Orbiter and STS Integration Procurement Branch. An announcement regarding the filling of the division chief vacancy is expected soon.

Easley and the five divisions reporting to him provide procurement and contract management support to JSC and the White Sands Test

Facility, representing approximately \$2 billion in annual procurement and contracting activity.

Contracting activity includes space shuttles, space station elements, aircraft, computers, simulators, Mission Control Center requirements, flight operations, program support, flight crew equipment, and various institutional requirements.

Easley also is responsible for labor management relations programs between organized labor and contractor organizations.

Upon joining NASA in 1964, Easley continued in the acquisition area throughout his JSC career as chief of the Pricing Office, chief of the Research and Technology Procurement Office, chief, Shuttle Spacecraft Procurement Branch and special assistant to the director of administration.



Easley

O'Connor new FCOD deputy

Astronaut still training for STS-40

By Jeff Carr

Veteran shuttle astronaut Bryan D. O'Connor has been named deputy director of the Flight Crew Operations Directorate at JSC, effective immediately.

O'Connor, a Marine Corps colonel, will continue to train as the commander of shuttle flight STS-40, the space and life sciences mission SL-S-1, which is scheduled for launch in August 1990.

He replaces another veteran astronaut, Henry W. Hartsfield Jr., who was recently named director of the Space Flight/Space Station Integration Office for the Office of Space Flight at NASA Headquarters.

O'Connor was selected as an astronaut in 1980. He served as T-38 chase pilot for STS-3, and as Capcom for STS-5 through STS-9. His first space flight was in November 1985, as pilot of the space shuttle Atlantis on STS-61B during which the crew deployed three commun-

ications satellites and demonstrated space station assembly techniques.

After the Challenger accident, O'Connor served as assistant to the shuttle program manager until February 1988, and as chairman of NASA's Space Flight Safety Panel until February 1989.

O'Connor began his career with the U.S. Marine Corps after graduation from the U.S. Naval Academy in 1968. He flew A-4 Skyhawk light-attack aircraft at El Toro, Calif., before being assigned to the first Harrier squadron in Beaufort, S.C., where he completed a six-month cruise aboard the USS Guam in the Mediterranean.

After graduation from the U.S. Navy Test Pilot School, O'Connor served as a test pilot with the Naval Air Test Center's Strike Test Directorate at Patuxent River, Md.



O'Connor

Child Care board selects officers

By Linda Copley

The board of Space Family Education Inc., the non-profit organization that will operate JSC's child care center, has selected the officers who will shepherd the facility from the planning stages to construction and start-up.

Michael Evans, an orbit design engineer in the Mission Operations Directorate (MOD), was elected president; Kamlesh Lulla, a research scientist in the Space and Life Sciences Directorate, vice president; Mitchell Wu, Crew and Thermal Systems Division, treasurer; Lori Beauregard, division secretary for MOD's Advanced Program Office, was elected policy

and procedures chairman; and Reese Squires, a StellaCom secretary, was elected board secretary.

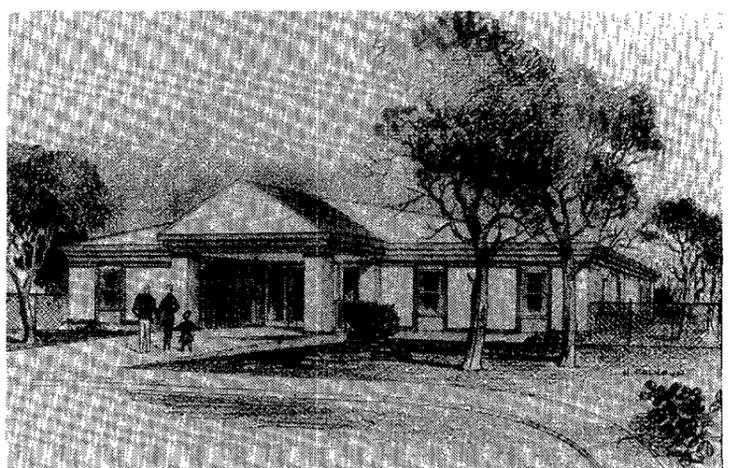
Bob Hall, of Human Resources' Program and Policy Office, is serving as the group's liaison to management, and Estella Gillette and Mary Allen will continue as advisors through the opening of the center next May.

The board is gathering weekly to meet upcoming deadlines critical to the start-up of the center. In addition, board members toured The Clear Lake Institute to view a "model" child care facility, and plan to tour the University of Houston's Central Campus facility later this month.

Important milestones for the organization include: Aug. 30—a general meeting of all members and those interested in becoming members at 4:30 p.m. in the Bldg. 30 auditorium; and Sept. 30—the site will be completely prepared, with the hook-ups for utilities and plumbing and piers erected. Installation of the modular building should be completed by the end of the year.

The committee plans to begin hiring staff for the center by January 1990. The drawing that will select 62 children who will attend the center is planned for February 1990. The parents of those chosen must be present at the drawing to qualify

Please see CHILD, Page 4



This artist's concept shows how the JSC Child Care Center will look once the building is in place just south of the Gilruth Recreation Center.

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays. A calendar of Employee Activities Association events is now available on the PROFS computer network.

- General Cinema (valid for one year): \$3.50 each.
- AMC Theater (valid until May 1990): \$3 each.
- Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults, \$8.15; children \$5.10.
- Sea World (San Antonio, year long): adults, \$17.25; children \$14.75.
- Palm Beach at Moody Gardens (valid until September 1989): adults \$2.75; children \$1.50.
- Astroworld (valid 1989): adults, \$14.12; children under 4, \$11.99; Waterworld (valid 1989): \$8.15. Two-day combination ticket-for Astroworld and/or Waterworld, \$16.62.
- JSC/EAA Family Day at Astroworld (Aug. 20) and FEB/FBA Family Day at Astroworld (Aug. 27): \$9.95 with coupons, available from Bldg. 11 Exchange Store.
- Astros vs. Chicago Cubs (August 19, 7:35 p.m., also includes the Old Timers Game): \$9.
- Texas Renaissance Festival (weekends Sept. 30-Nov. 12): adults, \$8.95; children \$4.95.

JSC

Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth Recreation Center. Everyone will be required to show a badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance.

EAA badges—Dependents and spouses may apply for a photo I.D. 6:30-9:30 p.m. Monday-Friday.

Defensive driving—Course is offered from 8 a.m.-5 p.m., Aug. 19 and Sept. 16; cost is \$15.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m. on Aug. 24; cost is \$4.

Aerobics and exercise—Both classes are ongoing; cost is \$24.

Mixed volleyball sign-ups—Registration will be the week of Aug. 21. This season the actual picking of teams to play in the league will be done by a lottery system. For more information, pick up a flyer on the guidelines and procedures.

Tennis lessons—Beginning tennis lessons, Mondays 5:15-6:45 p.m. starting Aug. 21; six-week course is \$32.

Soccer and football sign-ups—Registration will be Aug. 31. For more information, pick up a flyer on the guidelines and procedures.

Summer sizzler—Men's open "C" softball tournament is Aug. 26-27. Entry fee is \$95 and the entry deadline is 6 p.m. Aug. 24.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Sale: Remod. 3-2-2, 1,800 sq. ft., den w/FPL, all brick, redwood deck w/spa, assume 9.875% (must qualify), \$72,900. Richard, x30271 or 474-9334.

Sale: Wooded lot, Arrowhead Lake Estates, owner finance, \$6,500. 482-2877.

Sale: 60 acres, 3 mi. from Karnes City on Hwy. 80, 50 mi. from San Antonio; lg. 2-story house, El Campo, on 1 1/2 lots, many fruit trees. 783-9164.

Sale: CL Meadow Green, 2-story, trad., 4-2.5-2 plus study and game room, \$128,000. 486-1404.

Rent: 1 BR apt., \$250/mo., Sept. Judy, x37447.

Sale: Alvin/Pearland area, brick 3-2-2, wkshp. area, 1,800 sq. ft., FPL, C/AH, 3/4 acre, trees, fenced dog kennel, patio, beamed cath. ceiling, \$53,000. 977-0223.

Sale: Brazos Country development, 1.6 acres, lovely treed lot, elec. and water, \$19,500. Linda Center, 589-8303 or 392-5594.

Rent: Galv. condo, fully furn., 2 BR, Seawall Blvd., avail. Sept. 9-16, \$500. 486-4466.

Sale: League City, 2.06, city water and sewer avail., near schools, \$39,950, owner fin. (713) 554-6695.

Sale: Seabrook, 3.29 acres w/cozy home, 2-1, owner fin., \$95,000. 532-4784.

Rent: Webster/CL, 2 BR apt., many extras, \$370/mo. Dave, x38156 or 486-5181 or Eric, x38420.

Sale: Big Bend area, getaway and hunting, 160 acres, \$140/acre, CFD 20% down, 9% for 5 yrs. 337-4051.

Rent: Lake Livingston, waterfront house, 3-2, CA&H, fully furn., covered decks, pier, weekend or week rates. 482-1582.

Rent: El Lago, 4-2, lg. fenced lot, avail. Sept. '89, \$895/mo. 532-4237.

Lease: Piper's Meadow, 3-2-2, no pets, clean, \$795 plus dep. 486-5527.

Lease: Oakbrook West, 4-2.5-2d, contemp. lg. living/dining, FPL, gar. opener, no pets, \$895/548-6609.

Sale/Lease: 10 acres, 1/2 mi. from Hwy. 146 on FM 517, ponds, barn, util. Trey, 280-4381 or 484-7834.

Lease: Friendswood/Forest Bend, 3-2-2, ceiling fan, patio, fenced, solar screens, \$525/mo. 482-6609.

Sale: Pearland, lg. 1 1/2 story, qual., custom built, 4-2.5, game room w/balcony and wet bar, 3-car gar. on 1 1/3 acre, \$145,000. 482-6994.

Trade: Custom canyon view, 6 yr. old, Austin stone, 4-3, off 360 west of Austin, want similar age, qual., w/in 20 min. of JSC. 471-8795 or 333-6083.

Heritage Park, 3-2-2, custom home, tile entry, new deck, fence, baths redone and vanities custom, new paint, \$58,500. Tony or Lori Emmons, 482-5139.

Rent: 2 BR in 3-2 house in League City/Newport subdiv., \$250/mo., bills split evenly, non-smokers only, sm. pets tolerated. Russ, x39130 or 554-5900.

Cars & Trucks

'72 Buick Skylark, 2 dr., 350 4bbl., dk. metallic gray on bottom, lt. gray on top, completely restored, \$3,500. Jan, 480-8190 or (713) 945-6894.

'78 Corvette, Silver Anniv. Ed., new 2-tone silver paint w/white int., T-tops, all power, 14k on new Vette eng., rebuilt brakes, suspension, \$8,750, OBO. Richard, x30271 or 474-9334.

'87 Sterling 825 SL, all options, low mi., under warr., red ext. w/camel leather int., \$15,900. 486-1404.

'78 Chevy window van, 350 V-8, auto., A/C, \$1,000. 641-5803.

'81 Buick Regal, 100K, A/CH, AM/FM/cass., \$1,000. Chris, x37796 or 480-0277.

'85 35' Mallard motor home, loaded, low mi., \$40,000. 337-4051.

'79 Buick Regal, A/C, auto., new tires, reliable, \$600, OBO. Stiles, 944-1111 or 488-5509.

'80 El Camino, \$850, OBO. 280-9693.

'78 MGB, rebuilt eng. w/15K, rebuilt front-end and steering, Weber carb., Monza exhaust sys., new carpet, 90K, \$3,500, OBO. x35370.

'86 Fiero SE, V-6, 4 spd. manual trans., loaded, 24K mi., \$8,000. Karen, x34284 or 486-5318.

'72 Fiat Spyder Convert., runs great, many new parts, stereo, blue, \$2,400, nego. 488-2941 or 388-1924.

'79 Honda Civic, 4 spd., new tires, exhaust sys., clutch, CV joints, struts, rebuilt eng., fair body, \$1,295. x33617 or 896-6347.

'79 Toyota Celica GT, liftback, good cond., A/CH, new tires, new batt., Sony stereo, \$1,300. Phong, x37990 or Katie, x33185 or 996-8608.

'84 GMC S-15 4WD PU w/topper, new clutch/main bearings/CV joints, 85K. 480-5220.

'79 Cadillac sedan, 4-dr., V-8 eng., ex. cond. x32060 or 488-5437.

'83 VW Rabbit, maroon w/beige int., A/C, A/T, AM/FM stereo cass., new Michelin radials, 84K, \$2,225 or 333-3508.

'70 Mercedes Benz, 280S, 4-DR. classic sedan, auto., AC, pwr. windows, \$5,500. Johnson, 488-2000.

Boats & Planes

'78 Renken, 19' Bowrider, 170hp fresh wtr. cooled, Merc. I/O, galv. EZ loader trlr., \$4,000. 532-3515.

14' Dolphin SR sailboat, trlr., good cond., \$400. Pat, 486-5217.

13' AMF board sailboat, \$250. x30838 or 333-2769.

'85 Prindle 16' Catamaran w/galv. trlr., dbl. trapeze w/harnesses, all rigging and access., ex. cond., stored inside, \$2,500. David, 996-5583.

'74 South Coast, 22', 3 sails, porta potti, 7.5hp Evin., new cushions, swim ladder, dual axle trlr., \$3,700. 332-0146.

45' Live Aboard boat slip, 793 Davis Rd., Dock 22, slip 4, \$65/mo. plus elec. 383-2964.

22' Columbia sailboat, fix keel, 6hp trolling motor, roomy cabin, head and sink, main jib and spinaker, \$3,300. x31588 or 488-1326.

14' alum. boat, 25hp Evin. trolling motor, trlr.,

Today

ACM to meet—The Clear Lake chapter of the Association for Computing Machinery (ACM) will meet at 11:30 a.m. Aug. 18 at Franco's Real Italian Restaurant on NASA Road 1. Joe Giarratano will moderate a discussion on "Computing Trends for the 1990s." For more information, call Gary Young, 480-1994.

Cafeteria menu—Special: tuna and noodle casserole. Entrees: broiled codfish, fried shrimp, baked ham. Soup: seafood gumbo. Vegetables: corn, turnip greens, stewed tomatoes.

Plan to try the all new Bldg. 11 cafeteria salad bar.

Monday

Voyager watch—Live television pictures of Neptune, broadcast from Voyager 2, will be shown between regularly scheduled planetarium shows at the Burke Baker Planetarium at the Houston Museum of Natural Science Aug. 21-25. Admission is \$2. For more information, call the museum at 526-4273.

Cafeteria menu—Special: meatballs and spaghetti. Entrees: wieners and beans, round steak with hash browns. Soup: chicken noodle. Vegetables: okra and tomatoes, carrots, whipped potatoes.

Tuesday

BAPCO to meet—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m. Aug. 22 at the League City Bank & Trust. For additional information, contact Earl Rubenstein at x34807, or 326-2354; or Ron Waldbillig at 337-5074.

Dates & Data

Cafeteria menu—Special: fried chicken. Entrees: beef stew, shrimp creole, sweet and sour pork chop with fried rice. Soup: beef and barley. Vegetables: stewed tomatoes, mixed vegetables, broccoli.

Wednesday

NMA to meet—The next meeting of the NASA/JSC Chapter of the National Management Association (NMA) will be at 5 p.m. Aug. 23 at the Gilruth Recreation Center ballroom. This month's featured speaker will be Paul J. Weitz, acting JSC director, discussing the state of the center and the process of forming JSC's vision of the future into a reality. Members are requested to notify their booster of their plans to attend this meeting by noon, Aug. 16. Non-members who would like to attend should contact Ann Hammond at x32933. For more information, contact Gerald Chapman at x34848.

Cafeteria menu—Special: Swiss steak. Entrees: fried perch, New England dinner. Soup: seafood gumbo. Vegetables: Italian green beans, cabbage, carrots.

Thursday

Voyager watch—The Houston Space Society is coordinating a series of free events revolving around Voyager 2's upcoming encounter with Neptune. Telescope viewing and lectures about the planets will be presented free from 7:30 p.m. Aug. 24 to 8 a.m. Aug. 25 in the Rice University Biology Bldg., Rm. 131. The session is sponsored by the Houston Space Society, the Houston Astronomical Society, Rice

University and the Fort Bend Astronomy Club. For more information, call Richard Braastad, 520-6924.

Cafeteria menu—Special: stuffed bell pepper. Entrees: turkey and dressing, enchiladas with chili, wieners and baked beans. Soup: cream of chicken. Vegetables: zucchini squash, English peas, rice.

Aug. 25

Voyager watch—An edited tape of Voyager 2's encounter with Neptune will be shown from 7:30-9:30 p.m. Aug. 25 in the Atlantic Room of the University Center at the University of Houston (UH) Central Campus; a model of the Voyager spacecraft will be displayed. The free session is sponsored by the Houston Space Society and the University Space Society at UH. For more information, call Richard Braastad, 520-6924.

Cafeteria menu—Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower au gratin, mixed vegetables, buttered cabbage, whipped potatoes.

Aug. 27

Voyager watch—Lectures concerning the Voyager 2 encounter with Neptune will be presented from 3:30-5 p.m. Aug. 27 in the Clear Lake Auditorium, Bayou Bldg., University of Houston-Clear Lake (UHCL). The free event is sponsored by JSC, UHCL and the Lunar and Planetary Institute. For more information, call Richard Braastad, 520-6924.

rod holders, ex. cond., \$1,750. Doug, 489-1488.

'85 Ozark 16' fish/ski, 75hp Merc., Thruster 11 trolling motor LCR 2000, drive-on trlr., no saltwater use, mint cond., \$5,500. 474-9566.

'88 O'Brien competitor windsurfer, 6m RAF sail, footstraps, mast and boom, ex. cond., \$500; F2 7.5m Camber mylar sail, \$140; Automaxi suprabar roof racks, \$30. 486-5734.

'67 Correct Craft, 18', inboard eng., low hrs., perf. cond., new trlr. incl., \$3,000. 282-2810 or 480-3909.

Cycles

'75 Honda CB750, blue, elec. start, kick stand, new batt., \$450. Michael, x38169 or 482-8496.

'82 Honda VF 750 Sabre, sport touring, fairing and lowers, Hondaline saddle bags, new tires, \$1,750. Richard, 480-0880.

'73 Honda CB 175, great shape, low mi., needs work, \$130. John, x38178 or 482-5837.

'81 Suzuki GS550T, 13K mi., needs work, \$700, OBO. Mike, x38487 or 334-3362.

'86 Honda 700 Interceptor VFR, gear driven cam V-4, like new, gar. kept, 1,700 mi., \$3,500, OBO. x31588 or 488-1326.

'86 Honda Rebel 450cc, 1,600 mi., very clean, \$1,500. O.T., x35710 or 482-2253.

'82 Honda Nighthawk 650, good cond., runs great, \$1,075 cash, OBO. Kelvin, x36905 or 488-8173.

'83 Honda XR200R, 200cc Enduro, low mi., new cond. x35365 or 480-6886.

Audiovisual & Computers

Mac II CX, 1 meg. memory, 40 meg. internal HD, Apple Hi-res color monitor, ex. keyboard, \$5,750. 944-0918.

Lightspeed C v3.02 compiler w/source level debugger for Mac, disks and manual, no regis., \$65. 944-0918.

Apple IIe, 128K, 2 disk drives, monochrome monitor, Microsoft CP/M card, mouse, manuals, \$1,000. David, 996-5583.

AT&T 6300, color system, 640 KB RAM, 768 KB expanded memory, 2 360 KB floppies, 2 parallel, 2 serial, game port, mouse, DOS and other software, \$1,200; 40 MB plus hard card, \$450, both \$1,600. Charlie, 488-8806 or 488-4578.

Household

Sofa-sleeper, queen size, blue/gray stripe, \$100; king bed hdbd. w/padded backrest and lights, walnut, needs refinish, \$30. 326-2795.

Pitt group sofa, large, steel blue, recliner on each end, less than 1 yr. old, paid \$1,200, will take \$850. Jan, 480-8190 or (409) 945-6894.

Entertainment center, light oak finish, holds T.V., stereo, VCR, and access., 77" H x 55" W x 21" D, \$250. Jim, x32426.

Sofa sleeper, loveseat, great shape, \$45. x38956 or 480-4696.

G.E. refrig./freezer, 22 cu. ft., side by side, 5 yrs. old, almond, \$750. Phyllis, x37479 or 538-3434.

3-pc. LR set, gold w/blue and lt. brwn. flowers, good cond., \$250, OBO; RCA 25" color console T.V., dk. wood, good cond., \$250, OBO. Jana, x31653 or 325-4030.

Beveled glass top rec. table, 1/2" thick glass, base of faux marble, seats four, two mos. old, paid \$550, sell for \$280. Katie, x33185 or 996-8608.

Sofa, like new, powder blue, tan and beige, \$150; love seat, brown and gold, \$50. Greg, 333-7160 or 488-5015.

Refrig., white Admiral, \$250. Greg, 282-3385 or 532-1012.

Photographic

Canon 70-210 zoom lens, \$70; Vivitar 3700 flash attach., \$15. Mike, x31090 or 482-1228.

Pets & Livestock

Red tail boa constrictor, endangered species, w/aquarium and heat rock. 554-4369.

Doberman pups, 3 fem., all shots and wormed. Lois, (409) 935-8745.

Free Australian Shephard, 2 yrs. old, red male, all shots. x37796 or 332-4184.

Free beautiful fem. cat, approx. 1 yr. old, black w/white chest and paws, green eyes. x33864 or 280-0861.

Pomeranian, 1 yr. old, cream color, \$125, OBO. 996-6029.

Free rabbits, 1 fem., honey colored, 1 male, white w/black tipped ears, 1 yr. old. Lee, 488-4026.

Wanted

Want to rent pop-up camper that sleeps 4. 480-7169.

Want 30" self standing gas kitchen range. Chuck, x34241 or 487-2978.

Want riders for vanpool, West Loop Park and Ride to NASA. Richard, x37557.

Want remote control for Stanley gar. door opener, Model 1200. x33033.

Want apt. W/D, stackable. 482-2877.

Want reliable, neat, nonsmoking female to share my home, \$250/mo., plus 1/2 util. Kathryn, 280-9040.

Want 2 roommates to share house in L.C. Newport subdiv., \$250/mo., non-smokers only, small pets tolerated. Russ, x39130 or 554-5900.

Lost and Found

Found ladies watch, CL area, describe and it's yours. Lydia, 333-2698 or 554-2600.

Personal

UH-CL offering noncredit evening classes in French, German, Russian and Spanish. For info. call 488-9277.

Musical Instruments

Trombone, silver. Bob, x38232 or 488-2801.

Fender jazz bass guitar w/hardshell case, ex. cond., sunburst finish, \$650. x33617 or 896-6347.

Pan guitar, never used, ex. cond., \$30. 486-7245.

Miscellaneous

Sears lawn mower, self propelled, rear bag, chute, manual runs great, \$100; artificial 7' Mt. Pine Xmas tree, \$50. Laurie, 480-8190 or 538-1667.

Peavy 8-channel mixer, \$200. Bill, 338-2855.

Long bed mini truck cover, fair cond., \$35. Jerry, x39287.

Power mower, self-propelled, needs drive chain, \$65. 326-2795.

Abdominal board, like new, \$40. Jane, x37169 or 470-2744.

Motorcycle helmets, Fulmer HT-9011 DOT,

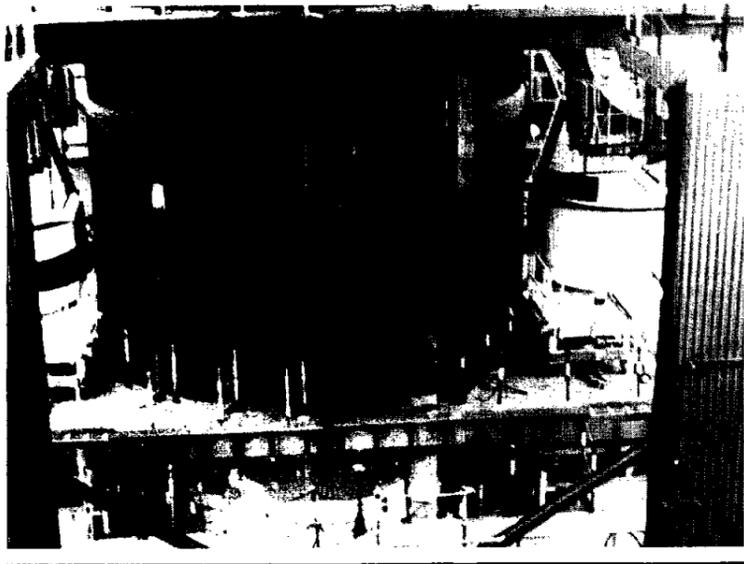
lg., hardly used, was \$115, now \$75; Bell shorty, \$20. Sam, x35602 or 482-9601.

Twin side by side stroller, \$145; weaving loom, not used, \$350; portable heater, \$20. 486-1888.

Children's bicycle, for preschooler w/ training wheels, \$20, BO. 333-6564 or 482-3824.

Marine radar, needs work, Raytheon, Model No. 2700, \$195. 280-8796.

Sears garden tiller, heavy duty, eng. in ex. cond., \$90. 280-8796.



VISITING AMERICA'S SPACEPORT

By Kelly Humphries

Many of us who work at JSC take for granted this center's campus-like atmosphere and preoccupation with program management, crew training and mission operations. A visit to Kennedy Space Center (KSC), where launch processing and operations are everything and the center looks and feels more industrial, can be eye opening.

To begin with, KSC and its neighboring Cape Canaveral Air Force Station are huge compared to JSC. Government-owned land along Florida's "Space Coast" stretches for 34 miles and includes some 155,000 acres, sandwiched between the Indian and Banana Rivers on Merritt Island. Within that area are the Shuttle Landing Facility (SLF), Launch Complex 39, the KSC Industrial Area, the Cape Canaveral Industrial Area and Cape Canaveral Air Force Station.

Much of Merritt Island is a National Wildlife Refuge, and the flora and fauna wave, crawl and fly by KSC in an anachronistic contrast to the space-age activities going on there.

Then there is the dangerous nature of much of the work that must be done. Simple things such as driving from one building to another can become complicated. Smokers, for instance, must leave their lighters with the guard at the gate when entering the area of the Vehicle Assembly Building, where solid rocket boosters (SRBs) are

assembled. The SRBs are just one of many "snotties," or hazardous materials, that must always be kept in mind for industrial safety's sake.

History goes back a bit farther at KSC, too. JSC didn't start to come together until 1962 and its first mission was Gemini 4 in 1965. The first rocket launched from Cape Canaveral, a modified German V-2, lifted off in 1950. Since then, every American manned rocket—from the Mercury-Redstone that boosted Alan Shepard into space to the Space Shuttle *Columbia*, which just carried the crew of STS-28 into orbit—and many of the unmanned rockets have blasted off from "the Cape."

In the middle of this vast area are the SLF and Launch Complex 39.

The SLF includes the 15,000-foot-long runway used by shuttles, the Shuttle Carrier Aircraft 747s, the astronauts' T-38 training aircraft and Shuttle Training Aircraft, as well as the Mating/Demating Device and Control Center, where the orbiters are removed from the backs of 747s after ferry flights.

Launch Complex 39 includes not only Pads 39A and 39B, but the Vehicle Assembly Bldg. (VAB), the Orbiter Processing Facility (OPF), the Orbiter Modification and Refurbishment Facility (OMRF), the Thermal Protection System Facility (TPSF), the Launch Control Center (LCC), the Crawler/Transporter Service Bldg., the crawlerway and



At left, the forward sections of a solid rocket booster (SRB) sit on the floor of the Vehicle Assembly Bldg. (VAB) at Kennedy Space Center as light streams into the 525-foot-tall facility. At far left, a photo taken from the 16th level of the VAB shows the solid rocket boosters and external tank for STS-34 awaiting mating with *Atlantis*.

the press site.

The VAB, built to house the giant Saturn V moon rocket, is one of the largest buildings in the world. At 525 feet tall, 716 feet long and 518 feet wide, it is large enough to hold one and a half great pyramids. The two SRBs and external tank for STS-34, the next space shuttle mission that will launch the *Galileo* Jupiter probe, already are mated in the VAB high bay awaiting *Atlantis*. The VAB also houses the main engine maintenance and overhaul shops.

West of the VAB is the OPF, a high-tech aircraft hanger which contains two high bays and can process two orbiters simultaneously. Inside, you can get close enough to touch an orbiter, something many KSC workers clad in factory-like coveralls must do routinely but that most JSC workers rarely have an opportunity to do.

Just east of the VAB is the Launch Control Center, where banks of computers and launch controllers sit side-by-side beneath huge windows overlooking the two shuttle launch pads. The Firing Room windows overlook the crawlerway, the 4.25-mile-long road the crawler-transporters use to carry the Mobile Launcher Platform and shuttles to the pad. The 17-foot-thick road bed of concrete and stone is topped with eight inches of egg-sized river rock that is quickly ground into pebbles by the weight of the vehicles and their cargo. Each of the crawler's

track segments weighs a ton by itself.

Launch Pads 39A and 39B themselves are massive, each covering a quarter of a square mile and consisting of a concrete flame trench; a Fixed Service Structure and a Rotating Service Structure that cradles the shuttle stack before launch. Nearby are tanks to supply water for sound suppression, main engine fuel and oxidizer and hypergolic reactants for the orbiters' Orbital Maneuvering Systems and Reaction Control Systems. The slidewire system is the crew's emergency egress link to the ground and a protective bunker. Surrounding the pad are bird and alligator-populated marsh and a chain-link fence topped with "razor wire," a type of barbed wire that threatens to cut you if you look at it too long.

In the middle of the island, on the Banana River's west bank, is the KSC Industrial Area, which contains KSC Headquarters, the Operations and Checkout Bldg. (O&C), the Flight Crew Support Bldg. and the Spacecraft Assembly and Encapsulation Facility (SAEF-2), where *Galileo* is undergoing its final preparations.

Across the river are the Cape Canaveral Air Force Station and the Cape Canaveral Industrial Area. At the industrial park are the Air Force Range Control Center; Hangar AE, where mission principals not directly involved in launches can monitor launch operations; and the Engineering and Operations (E&O) Bldg.,

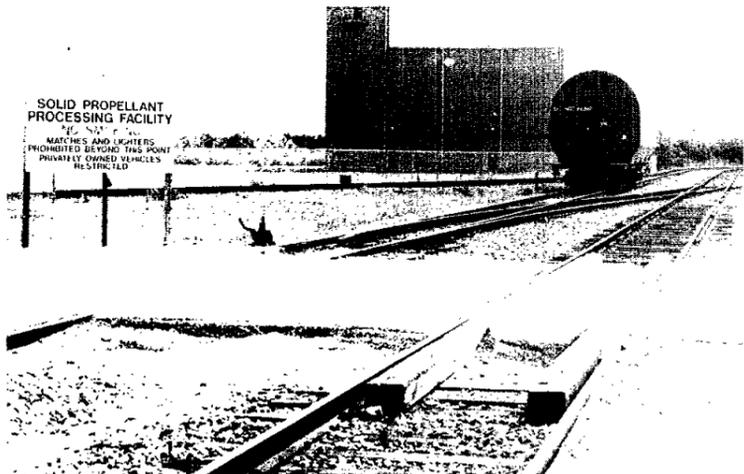
where NASA expendable launch operations have been managed.

East of the industrial area on the seacoast are the abandoned complexes where America's early rocket launches took place and the active complexes where today unmanned rockets sit awaiting launch on almost every active pad.

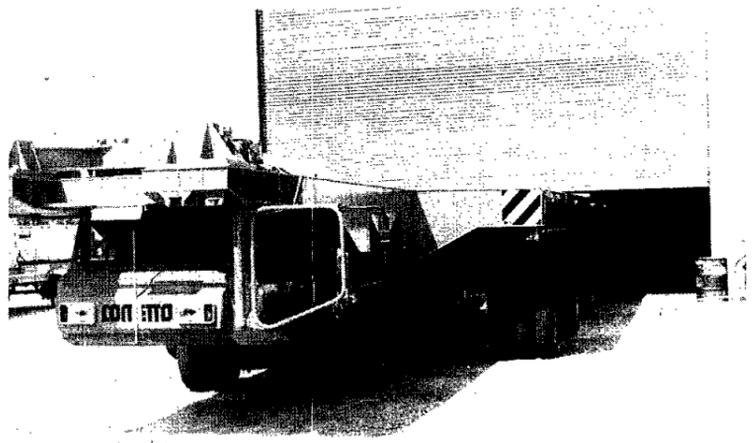
Among the dismantled or inactive launch pads are Complex 5/6, where Alan Shepard was launched aboard a Mercury-Redstone combination and became the first American in space; Complex 14, where John Glenn began his historic voyage into orbit; Complex 19, where a retracting gantry was used to launch the Gemini missions aboard Titan 2 rockets; and Complex 34, where the Apollo 204 fire occurred and Apollo 7 was launched atop a Saturn 1B rocket.

The grass may grow high in the cracks, but these concrete slabs and conical blockhouses still stand as monuments to the daring and dedication of the early space program.

The active complexes, however, are bustling with activity. At Complex 36, which soon will be turned over to General Dynamics and Convair for commercial launches, the final NASA-directed launch of an Atlas Centaur is planned for September. At Complexes 40 and 41, Titan 3 and Titan 34D launch activity is increasing, and at Complex 17, a Delta stands ready to launch a Global Positioning Satellite.



Above, rail cars are used to transport SRB segments to KSC from Morton Thiokol's manufacturing operation in Utah. The "No Humping" sign warns railroad employees not to bang the cars together with excessive force. At right, a monument to the Mercury missions that sent the first Americans into space sits outside Launch Complex 14 on Cape Canaveral.



A multi-wheeled vehicle that KSC workers plan to begin using soon will transport the space shuttle orbiters from the Orbiter Processing Facility to the VAB, allowing technicians to raise the landing gear in the OPF earlier in the processing schedule.

JSC viewing, lectures to accompany Voyager flyby

A series of lectures and viewing events leading up to *Voyager 2's* closest encounter with the planet Neptune is planned next week in JSC's Teague Auditorium.

In the past few months alone, the 12-year-old spacecraft has once more rewritten the astronomy books with the discovery of four new Neptunian moons, a huge dark spot similar to Jupiter's Great Red Spot, and two new previously undetected partial rings of debris, or ring arcs, encircling the blue planet.

Scientists at the Jet Propulsion Laboratory (JPL) in California, throughout the world, and of course, here at JSC are now expecting the unexpected as the flyby date nears.

The current schedule for *Voyager 2* activities at JSC includes:

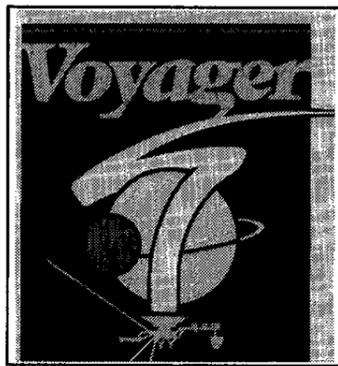
- Monday—Noon-1 p.m.: Dr. Jay Apt,

astronaut and planetary scientist, will emcee JSC's Space Science Branch, will narrate a video summary of *Voyager's* mission, narrated by Dr. Ed Stone, professor at CalTech and project scientist, which will be shown on the large screen. A live discussion of the encounter will follow.

- Monday—6-7:30 p.m.:

Teague auditorium will be open to the public, with live pictures from *Voyager* and a discussion of the mission by a JSC astronomer from 6-7. NASA Select will carry live pictures from *Voyager* until 7:30.

- Tuesday—Noon-1 p.m.: Dr. Faith Vilas of



- Friday—6-7:30 p.m.: Teague auditorium

will be open to the public, with live pictures from *Voyager* and a discussion of the mission by a JSC astronomer from 6-7.

- Monday, Aug. 28—Noon-1 p.m.: "Blue Room Updates" with Vilas.

- Tuesday, Aug. 29—Noon-1 p.m.: "Blue Room Updates" with Vilas.

• Tuesday, Aug. 29.—6-7:30 p.m.: Final day of live video from *Voyager*. Dr. David Black, Lunar and Planetary Institute, will emcee the evenings events, including a discussion of the mission from 6-7 p.m., followed by a question and answer session. NASA Select will carry live pictures from *Voyager* until 7:30.

Handouts (one each per family) will be available to attendees and will include "Planets at a Glance" and the "Voyager Fact Sheet."



NASA Photo

SHUTTLE SAFING—The Space Shuttle *Columbia* is surrounded by support crews and vehicles at Edwards Air Force Base following its Sunday landing. Defueling, toxicity testing and other immediate post-flight procedures are in progress. The photo was taken from a U.S. Army helicopter.

Apollo anniversary videotapes available

Video cassettes of the Apollo 20th Anniversary speakers and panel discussions are being made available to all JSC and contractor employees and retirees through the Public Affairs Office's Employee Current Events Library.

One of the tapes, entitled "Apollo History Panel" is an oral history project discussion of management, operations and policy issues surrounding the Apollo program. It features John Logsdon as moderator and panelists George Mueller, Robert Gilruth, Max Faget, Christopher Kraft Jr., Bill Tindall and Owen Morris.

The tapes are available for one-week loan by contacting Danna Evans, x38643, at the Employee Current Events Library in Bldg. 2, Rm. 155A, and through the Film and Video Distribution Library, 1020 Bay Area Blvd., Zeta Bldg., Suite 102, 486-9606. Borrowers are urged to call to check a tape's availability before dropping by.

A complete lists of the videotapes includes:

- The Moon Before Apollo—A 1 hour, 50 minute tape featuring a discussion of concepts about the origin, evolution and composition of the Moon by Jack Schmitt, and a speech on the selection of Apollo landing sites by Hal Masursky.

- Planning the Apollo Missions—A four-hour panel discussion moderated by Joe Loftus, and featuring Owen Maynard, Pete Frank, Doug Broom, Ken Cox, Ron Berry, Chet Vaughan, Jerry Craig, Dr. Chuck Berry and Ben Holder.

- Flying the Apollo Missions—A 2

hour, 20 minute set of Apollo flight controllers' recollections of the important and interesting aspects of the missions. Moderated by Joe Allen, and featuring Glynn Lunney, Gerald Griffin, Cliff Charlesworth and Steve Bales.

- What Did We Learn and Where Did It Lead?—A 2 hour, 42 minute set of talks featuring John Wood discussing what we have learned about the Moon, Jim Head addressing the Apollo legacy to planetary exploration, Dave Black discussing future planetary exploration, Wendell Mendell talking about lunar bases, and Larry Haskin considering lunar resources.

- The Moon as Seen by Apollo Astronauts—A 2 hour, 40 minute program on the Apollo missions as recalled by members of their crews. It features Jim McDivitt, Frank Borman, Gene Cernan, Mike Collins, Al Bean, Jim Lovell, Al Shepard and John Young.

- Apollo 11 Gala Event—A 1 hour, 30 minute cassette chronicling the Apollo gala banquet at the Hyatt Regency featuring remarks by Jim Hartz, Walter Cronkite, Aaron Cohen and the Apollo 11 astronauts.

- Recovery Operations Symposium—A 4 hour, 50-minute tape featuring speeches by aerospace escape and recovery experts from the Air Force, JSC and Eagle Engineering. Escape and recovery techniques for early manned spaceflight are discussed, along with techniques developed for the B1-A, F-14, Soviet Buran space shuttle and European Hermes space shuttle.

STS-34 October launch on schedule

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Aug. 28, and *Galileo* will be installed along with its IUS.

Following payload bay door closure and support strongback removal, the structural leak checks were completed on *Atlantis* and preparations were under way earlier this week to begin the main propulsion system testing. Also this week, hydraulic functional tests of the landing gear were completed.

A thermal protection tile on the nose landing gear door was replaced Wednesday and was not expected to

have an impact on *Atlantis'* roll over to the VAB Sunday.

As *Atlantis* prepares for its move to the VAB and then to the pad, *Galileo* awaits transfer to the launch pad also. The possibility that warm outside air was transferred through a purge duct which drives air through the building had no effect on the spacecraft itself, but managers are analyzing the effect on the IUS. Voltage checks were scheduled yesterday, with little impact in meeting the Aug. 23 "payload to the pad" date.

Once *Atlantis* reaches the launch

pad, *Galileo* will be transferred from the clean room in the rotating service structure to the Orbiter's payload bay. The terminal countdown demonstration test for the mission is scheduled to conclude on Sept. 6.

The crew will travel to Kennedy Space Center two days before the test.

STS-34 will be the thirty-first space shuttle mission and the fifth for *Atlantis*. Launch is scheduled for shortly after noon CDT on Oct. 12. Liftoff can occur during a 10-minute window on that day. The window grows longer as the launch period of six weeks increases.

STS-28 crew home; Columbia looks clean

(Continued from page 1)

is on the right main landing gear door, and two are forward of the external tank door.

Plans call for *Columbia* to depart Edwards atop its 747 Shuttle Carrier Aircraft tomorrow morning. The duo will probably remain in Texas follow-

ing the refueling stop because temperatures are expected to be above the 90 degree limit for takeoff.

Pilot Richards, a self-acknowledged "rookie" before the flight, exuberantly expressed his feelings about flying in space after working at NASA for nine years and training

for his first flight for five.

"It wasn't nice, it was fantastic! One of the things that made it fantastic, looking out at this crowd, there's a lot of people who were part of the training team and part of Johnson Space Center that helped me get ready to go."

Huntoon joins space university advisers

Dr. Carolyn Huntoon, director of Space and Life Sciences, has joined the board of advisers of the United States Foundation (USF) for the International Space University (ISU).

The foundation is a non-profit organization established to develop greater awareness and discover talented students for ISU, and to provide fundraising efforts for the university.

Cohen presents secretarial awards

Debra Holland, Mable Shepard, and Mary Nordin each received cash awards and a plaque from JSC Director Aaron Cohen in separate ceremonies being held at the Marshall B. Ruffin

JSC People

Secretarial Excellence Award recipients. The awards are given monthly in recognition of special achievements in the secretarial field.

Holland was recognized for her efforts as secretary of the Spacecraft Software Division of the Mission Operations Directorate (MOD). Shepard's award was for her performance in the MOD Mechanical and Crew Systems Branch, prior to her current assignment providing secretarial support for the Operations Support Cen-

tract Source Board. Nordin serves as secretary to the deputy director of administration.

Technical awards

The Clear Lake Council of Technical Societies honored Dr. Zafar Taqvi, Clarence Wesselski, and Marsha Hirasaki at its annual banquet at the Gilruth Recreation Center on June 16.

Taqvi, an advanced system engineering specialist with Lockheed, was named Educator of the Year; Wesselski, senior aerospace design and analysis engineer, Structures and Mechanics Division, was named Technical Person of the Year, and Hirasaki, president and founder of Nelson

Child care board plans under way

(Continued from page 1)

for placement, and priority will be given to the children of civil servants.

The committee will begin intensive fund-raising efforts this fall. Children's sleepers and jogging suits (sizes 0-7 years), emblazoned with a NASA logo, will be sold from \$14-\$19. Order blanks are available from Mike Evans, x33667.

The committee is actively looking for contributions of suitable facility equipment and toys. Anyone wishing to donate items should call Mary Allen, x33081. To volunteer services, or to join the corporation (a \$5 fee is required), call Reese Squires, x37776, or attend the Aug. 30 meeting.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Swap Shop deadline is every Friday, two weeks before the desired date of publication.

Editor Kelly Humphries
Associate Editor Linda Copley



Huntoon Shepard Holland Nordin

Controls, was named Technical Administrator of the Year.

New AFGE officers

JSC's American Federation of Government Employees (AFGE) Local 2284 elected new officers at its July meeting. Mary McLain, lead payroll technician, Financial Management

Division, was elected president; Nancy Whitecotton, executive vice president; Dr. John Zieglschmid, first vice president; Kenneth Martindale, assistant vice president; Ronald Isaac, chief steward; Jo Ann Birchett, secretary/treasurer; Linda Salinas, recording secretary; Mary Ferguson, women's coordinator; and Raul E. Mejia; percent of crm